THE CLEAN ENVIRONMENT DEVELOPMENT FACILITY— A TEST CENTER FOR AIR TOXICS CONTROL TECHNOLOGIES

PRIMARY PROJECT PARTNERS

Babcock & Wilcox Company
Alliance, OH

State of Ohio
Ohio Coal
Development Office
Columbus, OH

MAIN SITE

Babcock & Wilcox Company
Alliance Research Center
Alliance, OH

TOTAL ESTIMATED COST

$11,059,288

COST SHARING

DOE	**$5,000,000**
Non-DOE	**$6,059,288**

Project Description

The state-of-the-art Clean Environment Development Facility constructed at Alliance, Ohio, provides U.S. industry with a reliable, cost-effective center to evaluate the best technologies for reducing the trace impurities known as air toxics that are released when coal is burned. At 100 million Btu/hr (equivalent to a 10-megawatt generating plant), this $16.5 million facility will be large enough to give results indicative of a full-sized power plant, yet small enough to operate in a cost-effective manner. The facility will serve as both a research center for collecting air toxics data and a testing station for commercial as well as advanced air toxics control equipment.

In the Phase I test program, now complete, the center was used to develop baseline measurements of the effectiveness of conventional pollution-control equipment (baghouses, electrostatic precipitators, and wet sulfur dioxide scrubbers) in removing air toxics and other pollutants from coal-combustion flue gases.

Phase II testing will focus on developing air toxics control strategies using conventional flue gas cleanup equipment. Coal-cleaning methods will also be evaluated for their effectiveness in removing air toxics.

Phase III will test new air toxics control strategies and equipment that could lower the release of certain toxics below those of conventional systems.

Should the Environmental Protection Agency regulate air toxics in the future, the Clean Environment Development Facility will become an essential testing center for control technologies and operating strategies. As an alternative to the costly and impractical approach of using an actual power plant—in which tests would compromise the operation of the plant—the Clean Environment Development Facility offers utilities a way to obtain the engineering information they would need before committing to full-scale installation.

Program Goal

Tighter environmental standards to take effect in the year 2000 will require U.S. coal-based power plants to be much cleaner and more efficient than today's technology allows. DOE's goal is to develop by 2010 power systems that are at least 10 times cleaner than today's standards require, and at least 50% more efficient. The goal of the Clean Environment Development Facility project is to develop practical, cost-effective strategies for reducing emissions of air toxics from coal-fired boilers.

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Project Benefits

Title III of the Clean Air Act Amendments of 1990 charged the Environmental Protection Agency (EPA) with the responsibility for regulating emissions of 190 hazardous air pollutants in order to protect public health and the environment.

Electric utility plants are currently exempt from the requirement to install maximum achievable control technology to control air toxics emissions, pending the outcome of several risk assessment and emission characterization studies undertaken by EPA.

Air toxics emissions regulations could dramatically affect coal-burning utilities, which supply 56% of U.S. electricity. Therefore, the Department of Energy has assigned a high priority in its Fossil Energy program to studying air toxics emissions and possible control strategies for U.S. power plants.

DOE is working with the EPA and the utility industry to develop a comprehensive data base on air toxics emissions from existing power plants.

The Clean Environment Development Facility is a companion effort to the data-collection activity. The facility will:

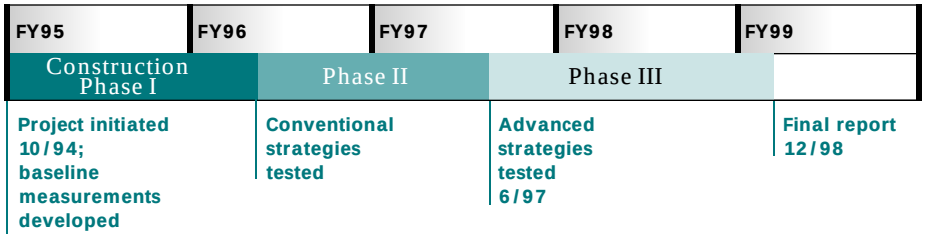
- Provide a test bed for conducting air-toxics-emissions work that can be reliably scaled to full-sized power plants.
- Study the types and amounts of air toxics released from a variety of coals, including coals that have been cleaned.
- Allow conventional pollution-control equipment to be optimized for air toxics removal.
- Serve as a development center for advanced emissions-control technologies.
- Permit new, more accurate air-toxics-monitoring equipment to be tested and validated.
- Establish a library of air toxics data for utilities and others to use in developing the best control strategies.

Cost Profile (Dollars in Millions)

	Prior Investment	FY95	FY96	FY97	Future Funds
Department of Energy *	—	$3.2	$0.9	$0.9	—
Private Sector Partners	—	$3.8	$1.1	$1.1	TBD

* Appropriated Funding

Key Milestones



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